

(17) $V = 0.8 \text{ L}$

$T = 773 \text{ K}$

$P = 37.2 \text{ atm}$

$n_{\text{Br}_2} = \frac{50}{160} = 0.3125$

$n_{\text{Br}_2} = \frac{37.2 \cdot 0.8}{0.082 \cdot 773} = 0.4695$

$0.4695 = 0.3125 + x$; $x = 0.157$

$K_c = \frac{\left(\frac{0.314}{0.8}\right)^2}{\frac{0.156}{0.8}} = 0.79$



n_i 0.3125

n_{eq} $0.3125 - x$

n_{eq} 0.156

$2x$

$2x$

0.314

(19) $V = 2 \text{ L}$

$T = 303 \text{ K}$

n_i 0.020

n_{eq} $0.020 - x$

n_{eq} 0.014



$(2x) \rightarrow 0.012 = 2x$
 $x = 0.006$

a) $\alpha = \frac{0.006}{0.020} = 0.3 \Rightarrow 30\%$

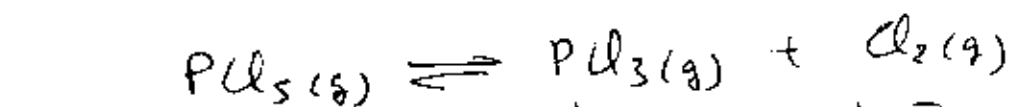
b) $K_c = \frac{\left(\frac{0.012}{2}\right)^2}{\frac{0.014}{2}} = 5.14 \cdot 10^{-3}$

(20) $T = 458 \text{ K}$

$P = 1 \text{ atm}$

$\alpha = 0.3$

$0.3 = \frac{x}{n_i}$; $x = 0.3 n_i$



n_{eq} $n_i - x = n_i - 0.3 n_i = 0.7 n_i$

$x_{\text{eq}} \Rightarrow 0.7/1.3 = 0.54$

$P_{\text{eq}} \Rightarrow 0.54 \cdot 1$

$0.3 n_i$

$0.3/1.3 = 0.23$

$0.23 \cdot 1$

$0.3 n_i$

$0.3/1.3 = 0.23$

$0.23 \cdot 1$

$K_p = \frac{0.23^2}{0.54} = 0.0987$; $K_c = \frac{0.0987}{0.082 \cdot 458} = 2.6 \cdot 10^{-3}$

$K_c = K_p \cdot (RT)^{-1}$